

## **Internet Connection Speeds: Understanding Upload vs Download - 1**

*by Vanessa Kier*

Until recently, I never paid much attention to my internet connection speed. I knew I was on the low end of the DSL spectrum, and so I accepted that certain tasks, such as uploading photos to a photo sharing site or downloading an e-mail with a huge attachment, just take a long time.

Only after I started uploading larger amounts of data than before did I discover that download and upload speeds are not equal. In fact, DSL is short for Asymmetric Digital Subscriber Line, where Asymmetric refers to the fact that downloading data happens faster than uploading data.

In order to understand why we should care about the different internet speeds, let's first define the terms.

Upload speed refers to the speed at which information leaves your computer and heads out to the internet. Download speed is how fast data moves from the internet to your computer.

A typical upload occurs when you type a web address into the url box and hit enter. This sends a request from your computer to the web site's host computer asking that it send you all the data that comprises that web page. The download happens when the server sends the web site's data to your computer, complete with graphics and links, so you can view the page on your screen. With a fast download speed, you don't see each individual item loading. With a slower download speed, such as you get with dial-up, areas of the web page that are more data-intensive will show up last. I notice that even with DSL, certain web pages with animated graphics or video commercials load much slower than pages that aren't so data intensive.

In the above example, your request for the host server to send you the web page's data is minuscule compared to the giant amount of data being sent to you. In order to allow for the fastest possible display of web pages, most internet providers allocate their bandwidth so that download speed is faster than upload speed. Most providers offer download speeds that are five times faster than their upload speeds.

This disparity in speed occurs because internet providers have concluded that home consumers care more about download speeds, since the majority of work we do involves loading web pages, receiving e-mails, and downloading music, audio and/or video files.

As writers, though, I'm sure many of us are uploading large amounts of data as well. We upload photos and video clips to our websites/Facebook pages/online photo sharing sites. We send our large manuscript files to our agents and editors.

Anyone who uses an online backup service can confirm that the initial backup of your computer can take an agonizingly long time. In my case, backing up 21G of data would have taken about one week at my home internet upload speed of 334 kbps (kilobytes per second), but only 10 hours at my office, where our business cable internet has a maximum upload speed of 7 mbps (megabytes per second, where a megabyte is approximately 1,000 kilobytes).

Decided that you want a faster internet connection? If you switch to a plan with a faster download speed, you'll also be getting a faster upload speed, since the two are always paired. It would be nice if there was an à la carte option—choose from List A for your download speed and from List B for your upload speed—but that's not how it works.

What speed do you need?

Unfortunately, the speed of the internet connection you can sign up for is limited to the offerings of your local internet providers. Many areas offer both DSL and cable. Extremely remote areas may only have satellite internet. In my local service area there are only a few internet providers, and none of them offer the blazing fast speeds that my dad gets in his part of the country. I am incredibly jealous, but there's nothing I can do. His internet provider doesn't even do business in my area.

## **Internet Connection Speeds: Understanding Upload vs Download - 2**

Generally, cable internet will offer higher speeds than DSL. The top tier DSL plan through my local phone company offers 3 mbps download/512 kbps upload, while the cable company's fastest option is 50 mbps download/10 mbps upload. Of course, the cable option also costs a lot more.

To give you an idea of what speed will make you happy, some internet providers offer a comparison table that shows how long typical tasks will take at various speeds. It might take 3 seconds to download 2 songs at speed X and 43 seconds to download the same two songs at speed Y. My local cable provider has a cute graphic that fills up as the time for each download completes, giving a nice visual of the projected wait time.

Let's say you've gone and switched to a faster internet service. Does this mean you'll always get the speed promised by the internet provider?

Alas, no.

There are factors beyond your control that can limit how fast your data moves. Heavy data traffic can decrease your speed. This is one of the complaints some people have with cable internet. The more data-hungry your neighbors are, the slower the speeds, because there is only a fixed amount of room for data transfer across the lines.

Going online after work? So is everyone else, and that can also slow things down.

Additionally, DSL speeds can suffer the farther away you are from your provider's hub.

Other factors can have an effect as well. Some antivirus software noticeably slows down both downloading and uploading speeds, due to the time needed to scan the data for infection. My online backup provider seems not to have enough server capacity to handle all of its customers' requests, so the upload speed cycles from my maximum, down to zero and back up again, depending on how busy the software's server is at any given second.

If you'd like to test the actual speed of your internet connection, there are several free online sites, such as [www.speedtest.net](http://www.speedtest.net) and [www.speakeasy.net/speedtest](http://www.speakeasy.net/speedtest) you can visit. These sites will send data to/from your computer and give you your actual speed at that moment in time. I'm pleased to say that my test came out very close to what my internet provider promised.

So, there you have it. Internet speeds demystified. The next time it seems to take forever to upload your photos, just remember this—all is not equal in internet speed.

This article first appeared in the *Tech Talk* column in the December 2010 issue of *Heart of the Bay*, the San Francisco RWA newsletter.